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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/603,532

06/25/2003

Michael Joseph Pizzo

13768.402

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47973

7590

07/28/2008

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EXAMINER

ABEL JALIL, NEVEEN

ART UNIT

PAPER NUMBER

2165

MAIL DATE

DELIVERY MODE

07/28/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/603,532

Applicant(s)

PIZZO ET AL.

Examiner

Neveen Abel-Jalil

Art Unit

2165

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on April 18, 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 11, 36-38 and 50-60 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11, 36-38 and 50-60 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(c), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(c) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 18-April-2008 has been entered.
2. The amendment filed on 18-April-2008 has been received and entered. Claims 1-9, 11, 36-38, and 50-60 are now pending.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, 5, 7-11, and 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zondervan et al. (US 6,516,327 B1) in view of Jim Challenger, Arun Iyengar, Paul Dantzig "A scalable system for Consistently Caching Dynamic Web Data", (from here on referred as Challenger et al.) and further in view of Craig et al. (U.S. Patent No. 6,757,708 B1).

As per claims 1, and 36, Zondervan et al. is directed to a computer system that accesses a database having one or more data tables, the computer system configured to provide content from the database to a Web server for inclusion in Web based responses to requests for Web based content, computer system including a cache configured to cache database content included in Web based responses so as to provide more efficient access to the cached database content when formulating subsequent Web based responses, a method for formulating a Web based response in response to receiving a Web based request for database content, the method comprising the following:

an act of inserting a record for the selected data table into a change notification table, the corresponding record including versioning information identifying and corresponding to the selected data table, the versioning information retrievable by the Web server to determine when a corresponding cache entry containing cacheable content from selected data table is invalid (Zondervan et al., column 11, lines 34-50; column 12, lines 20-34);

an act of inserting a record for the selected data table into a change notification table, the corresponding record including versioning information identifying and corresponding to the selected data table, the versioning information retrievable by the Web server to determine when a corresponding cache entry containing cacheable content from selected data table is invalid (Zondervan et al., column 11, lines 34-50; column 12, lines 20-34)

the cache entry including the versioning information identifying and corresponding to the selected data table (Zondervan et al., column 13, lines 2-16);

an act of querying the change notification table for versioning information identifying and corresponding to the selected data table (Zondervan et al., column 14, lines 28-36);

an act of receiving current versioning information identifying and corresponding to the selected data table (Zondervan et al., column 11, lines 34-50; column 12, lines 20-34);

an act of comparing the cached versioning information to the current versioning information table (Zondervan et al., column 14, lines 28-36).

Zondervan et al. does not teach an act of selecting a data table that is to be monitored for content changes, the selected data table selected from among the one or more data tables of the database.

Challenger et al. does teach the act of selecting a data table that is to be monitored for content changes comprises an act of the computer system automatically selecting a data table in response to a received Web request (page 300, column 1 last paragraph, lines 4-8, wherein the system is aware of only "athlete page" being imputed hence that is table selected).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Zondervan et al. by teachings of Challenger et al. to include the act of selecting a data table that is to be monitored for content changes comprises an act of the computer system automatically selecting a data table in response to a received Web request because automation is more efficient use of resources (see Challenger et al. abstract).

Zondervan et al. as modified still does not does teach an act of assigning a trigger to the selected data table, the trigger configured to update the versioning information for the selected table in the change notification table when content in the selected data table is altered.

Challenger et al. does teach the act of assigning a trigger to the selected data table comprises an act of the computer system automatically assigning a trigger in response to

receiving a Web request for content contained in the selected data table (page 301, column 1, section “3.5 The Trigger Table”).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to further modify Zondervan et al., as modified by teachings of Challenger et al. to include the act of assigning a trigger to the selected data table comprises an act of the computer system automatically assigning a trigger in response to receiving a Web request for content contained in the selected data table because automation is more efficient use of resources (see Challenger et al. abstract).

Zondervan et al. as modified still does not teach an act of caching interim results that can be used in the generation of a plurality of different Web responses in a cache entry in the cache, the interim results based on one or more records from the selected data table and one or more records from one or more other data tables;

an act receiving a Web based request for a Web based response that is to include the interim results subsequent to caching the interim results in the cache entry;

an act of determining how to access the interim results for inclusion in a Web based response based on the results of comparing the versioning information and in response to receiving the Web based request for the portion of content;

an act of accessing the interim results in accordance with the determination; and

an act constructing a Web based response responsive to the Web based request based on the interim results.

Craig et al. teaches an act of caching interim results that can be used in the generation of a plurality of different Web responses in a cache entry in the cache, the interim results based on

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one or more records from the selected data table and one or more records form one or more other data tables (See Craig et al. Abstract);

an act receiving a Web based request for a Web based response that is to include the interim results subsequent to caching the interim results in the cache entry (See Craig et al. column 8, lines 45-57);

an act of determining how to access the interim results for inclusion in a Web based response based on the results of comparing the versioning information and in response to receiving the Web based request for the portion of content (See Craig et al. column 10, lines 12-25, and see Craig et al. column 10, line 50-65, and see Craig et al. column 1, lines 20-42, prior art);

an act of accessing the interim results in accordance with the determination (See Craig et al. column 8, lines 45-54); and

an act constructing a Web based response responsive to the Web based request based on the interim results (See Craig et al. column 9, lines 19-25).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to further modify Zondervan et al. as modified by teachings of Craig et al. to include storing interim results in cache, providing access methods to the results and constructing response accordingly to Web requests since it provides for faster access in avoidance of re-execution of information search and data gathering.

As per claim 2 Zondervan et al. as modified is directed to the act of selecting a data table that is to be monitored for content changes comprises an act of receiving user-input that causes

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the computer system to select a data table is to be monitored for content changes (See Challenger et al. page 295, section 2.1, column 2, “object ID” is “table ID”, and see Challenger et al. page 300, column 1 last paragraph, lines 4-8, wherein the system is aware of only “athlete page” being imputed hence that is table selected).

As per claim 3 Zondervan et al., as modified teaches the act of selecting a data table that is to be monitored for content changes comprises an act of the computer system automatically selecting a data table in response to a received Web request (Challenger et al. page 300, column 1 last paragraph, lines 4-8, wherein the system is aware of only “athlete page” being imputed hence that is table selected).

As per claim 5 Zondervan et al., as modified teaches the act of inserting a record for the selected data table into a change notification table comprises an act of the computer system automatically inserting the record in response to a Web request (Challenger et al. page 301, column 1, lines 24-27; column 2, lines 9-10, wherein “inserting” means “adding”)

As per claim 7 Zondervan et al., as modified is directed to the act of assigning a trigger to the selected data table comprises an act of receiving user input instructing a trigger to be assigned to the selected data table (Challenger et al. page 301, column 1, section “3.5 The Trigger Table”).

As per claim 8 Zondervan et al., as modified teach the act of assigning a trigger to the selected data table comprises an act of the computer system automatically assigning a trigger in response to receiving a Web request for content contained in the selected data table (Challenger et al., page 301, column 1, section “3.5 The Trigger Table”).

As per claim 9 Zondervan et al., as modified is directed to the act of assigning a trigger to the selected data table comprises an act of the assigning a trigger that, when executed by a processing unit at the computer system in response to content in the selected data table being altered, will update a corresponding change ID in the table change notification table (See Challenger et al., page 295, section 2.1, column 2, “object ID” is “table ID”, and see Challenger et al., page 300, column 1 last paragraph, lines 4-8, wherein the system is aware of only “athlete page” being imputed hence that is table selected).

As per claim 11 Zondervan et al., as modified is directed to the act of sending the updated versioning information to the Web server comprises an act of sending updated versioning information that indicates to the Web server that the cache is to be invalidated (See Craig et al., column 10, lines 10-21).

As per claim 37 Zondervan et al., as modified is directed to the one or more computer-readable storage media are physical media (See Craig et al., Figure 1, 28, 30).

As per claim 38 Zondervan et al., as modified is directed to the one or more computer-readable storage media include system memory (See Craig et al. Figure 1, 28, 30).

6. Claims 4, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zondervan et al. (US 6,516,327 B1) in view of Jim Challenger, Arun Iyengar, Paul Dantzig "A scalable system for Consistently Caching Dynamic Web Data", (from here on referred as Challenger et al.), and in view of Craig et al. (U.S. Patent No. 6,757,708 B1) and further in view of Dettinger et al. (US PUB 2003/0093413 A1).

As per claims 4, and 6 Zondervan et al., as modified still does not teach the act of inserting a record for the selected data table into a change notification table compromises an act of inserting the record into a SQL table.

Dettinger et al. does teach the act of inserting a record for the selected data table into a change notification table compromises an act of inserting the record into a SQL table (Dettinger et al. page 4, paragraph 0036, lines 11-13).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to further modify Zondervan et al., as modified by teachings of Dettinger et al. to include inserting a record into a SQL table because SQL language is most commonly used in databases.

7. Claims 50-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zondervan et al. (US 6,516,327 B1) in view of Jim Challenger, Arun Iyengar, Paul Dantzig "A scalable

system for Consistently Caching Dynamic Web Data", (from here on referred as Challenger et al.), and in view of Craig et al. (U.S. Patent No. 6,757,708 B1), and further in view of Shaul Dar, Michael J. Franklin, Björn T. Jónsson, Divesh Srivastava, Michael Tan "Semantic Data Caching and Replacement" (from here on referred as Dar et al.)

As per claim 50 Zondervan et al. as modified teaches interim results (See Craig et al. abstract) but still does not teach wherein the act of determining how to access the interim results comprises an act of determining that interim results are to be reconstructed from the one or more records in the selected data table and the one or more records in the one or more other data tables.

Dar et al. does teach wherein the act of determining how to access the interim results comprises an act of determining that interim results are to be reconstructed from the one or more records in the selected data table and the one or more records in the one or more other data tables (Dar et al., section 2.4, 3rd paragraph).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to further modify Zondervan et al. as modified by teachings of Dar et al. to include wherein the act of determining how to access the interim results comprises an act of determining that interim results are to be reconstructed from the one or more records in the selected data table and the one or more records in the one or more other data tables because cache is a small, rapid retrieval memory that cannot hold large sets of data therefore the remaining portion remains on disk (Dar et al., section 1.3, lines 5-8).

As per claim 51 Zondervan et al. as modified is directed to a n act of invalidating the cache entry that includes the interim results based on the comparison of version information in response to receiving the Web based request for the portion of content (Zondervan et al. figure 11, #218; column 14, lines 18-22).

As per claim 52 Zondervan et al. as modified still does not teach wherein the act of determining how to access the interim results with the determination comprises an act of determining that the interim results are to be retrieved from the cache entry.

Dar et al. does teach wherein the act of determining how to access the interim results with the determination comprises an act of determining that the interim results are to be retrieved from the cache entry (Dar et al., section 2.4, 3rd paragraph).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to further modify Zondervan et al. as modified by teachings of Dar et al. to include wherein act of determining how to access the interim results with the determination comprises an act of determining that the interim results are to be retrieved from the cache entry because cache is a small, rapid retrieval memory that cannot hold large sets of data therefore the remaining portion remains on disk (Dar et al., section 1.3, lines 5-8).

As per claim 53 Zondervan et al. as modified still does not teach wherein the act of accessing the interim results in accordance with the determination comprises an act of reconstructing the interim results from one or more records in the selected data table and the one

or more records in the one or more other data tables notwithstanding that interim results were cached at the computer system when the Web based request was received.

Dar et al. does teach wherein the act of accessing the interim results in accordance with the determination comprises an act of reconstructing the interim results from one or more records in the selected data table and the one or more records in the one or more other data tables notwithstanding that interim results were(I think its suppose to be “were”) cached at the computer system when the Web based request was received (Dar et al., section 2.4, 3rd paragraph).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to further modify Zondervan et al. as modified by teachings of Dar et al. to include wherein the act of accessing the interim results in accordance with the determination comprises an act of reconstructing the interim results from one or more records in the selected data table and the one or more records in the one or more other data tables notwithstanding that interim results were(I think its suppose to be “were”) cached at the computer system when the Web based request was received because cache is a small, rapid retrieval memory that cannot hold large sets of data therefore the remaining portion remains on disk (Dar et al., section 1.3, lines 5-8).

As per claim 54 Zondervan et al. as modified is directed to wherein the act of constructing a Web based response responsive to the Web based request based on the interim results comprises including the reconstructed interim results in the Web based response notwithstanding that the interim results were cached at the computer system when the Web based request for the portion of content was received (Dar et al., section 2.4, 3rd paragraph).

As per claim 55 Zondervan et al., as modified is directed to wherein computer executable instructions that, when executed, cause the computer system to determine how to access the interim results comprise computer executable instructions that, when executed, cause the computer system to determine that the interim results to be reconstructed from the one or more records in the selected data table and the one or more records in the one or more other data tables (Dar et al., section 2.4, 3rd paragraph).

As per claim 56 Zondervan et al., as modified is directed to further comprising: computer executable instructions that, when executed, cause the computer system to invalidate the cache entry that includes the interim results based on the comparison of version information in response to receiving the Web based request for the portion of content (See Craig et al. abstract).

As per claim 57 Zondervan et al., as modified is directed to wherein computer executable instructions that, when executed, cause the computer system to determine how to access the interim results comprise computer executable instructions that, when executed, cause the computer system to an act of determine that the interim results to be retrieved from the cache entry (Dar et al., section 2.4, 3rd paragraph).

As per claim 58 Zondervan et al., as modified is directed to wherein computer executable instructions that, when executed, cause the computer system to access the interim results in

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accordance with the determination comprise computer executable instructions that, when executed, cause the computer system to reconstruct the interim results from one or more records selected database table notwithstanding that the interim results were cached at the computer system when the Web based request was received (Dar et al., section 2.4, 3rd paragraph).

As per claim 59 Zondervan et al. as modified is directed to wherein computer executable instructions that, when executed, cause the computer system to construct a Web based response based on the interim results comprise computer executable instructions that, when executed, cause the computer system to include a portion of content from the selected database table in the Web based response notwithstanding that the interim results were cached at the computer system when the Web based request for was received (Dar et al., section 2.4, 3rd paragraph).

8. Claim 60 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zondervan et al. (US 6,516,327 B1) in view of Jim Challenger, Arun Iyengar, Paul Dantzig "A scalable system for Consistently Caching Dynamic Web Data", (from here on referred as Challenger et al.) and further in view of Craig et al. (U.S. Patent No. 6,757,708 B1), and further in view of Kanaley (U.S. Patent No. 6,970,981 B2).

As per claim 60, Zondervan et al. is directed to in a computer system that accesses a database having one or more data tables, the computer system configured to provide content from the database to a Web server for inclusion in Web based responses to requests for Web based content, the computer system including a cache configured to cache database content

included in Web based responses so as to provide more efficient access to the cached database content when formulating subsequent Web based responses, a method for formulating a Web based response in response to receiving a Web based request for database content, the method comprising the following:

an act of selecting a data table that is to be monitored for content changes, the selected data table selected from among the one or more data tables of the database (See corresponding rejection for claim, 1 above);

an act of inserting a record for the selected data table into a separate change notification table, the record including versioning information identifying and corresponding to the selected data table, the versioning information retrievable by the Web server to determine when a corresponding cache entry containing cacheable content from the selected data table is invalid (See corresponding rejection for claim, 1 above);

an act of attaching a trigger to the selected data table, the trigger configured to update the versioning information for the selected table in the change notification table when any record in the selected data table is altered regardless of the mechanism used to alter the record (See corresponding rejection for claim, 1 above);

an act of constructing interim results from a collection of records, including a plurality of records in the selected data table and one or more records from one or more other data tables, the interim results usable in the generation of a plurality of different Web responses (See corresponding rejection for claim, 1 above);

an act of caching the interim results in a cache entry in the cache, the cache entry including the versioning information identifying and corresponding to the selected data table (See corresponding rejection for claim, 1 above);

an act of a cache interface module issuing a querying to the change notification table for versioning information identifying and corresponding to the selected data table (See Craig et al. column 14, lines 20-27);

an act of detecting a change to a record in the selected data table, subsequent to issuing the blocking query (See Challenger et al. page 301, column 2, section 3.5.1, wherein synchronization maintains up-to-date version information);

an act of the assigned trigger updating the versioning information for the selected table in the change notification table, subsequent to issuing the blocking query (Challenger et al. page 301, column 2, section 3.5.1);

an act of comparing the cached versioning information to the updated versioning information (See corresponding rejection for claim, 1 above); and

an act of invalidating the cache entry for the interim results based on the results of the comparison (See corresponding rejection for claim, 1 above).

The motivation to combine the references are similar to those of claim 1 since claim 60 contains similar recitations.

The combined references disclose the claimed invention but not specific to locking mechanism preformed in caching systems. Specially the claimed:

the blocking query blocking on the change notification table until versioning information for the selected table is updated;

an act of the cache interface module receiving the updated versioning information in response to the blocking query.

While, Kanaley teaches locking mechanism to cache updates and version management (See Abstract and see column 5, lines 53-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to further modify Zondervan et al. as modified by teachings of Kanaley to include locking mechanism to cache updates and version management because it provides for cache consistency and coherency of multiple views.

Response to Arguments

9. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. For cited art, see PTO-form 892.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Neveen Abel-Jalil whose telephone number is 571-272-4074. The examiner can normally be reached on 8:30AM-5:30PM EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christian P. Chace can be reached on 571-272-4190. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Neveen Abel-Jalil
Primary Examiner
July 24, 2008
/Neveen Abel-Jalil/

Primary Examiner, Art Unit 2165